

CHANGES IN THE SIZE OF FARMING UNITS
IN THREE LAND USE AREAS OF
HANCOCK COUNTY OHIO, 1937-40

R. C. Headington and J. I. Falconer

Department of Rural Economics and Rural Sociology
Mimeograph Bulletin No. 148

Ohio State University
and
Ohio Agricultural Experiment Station
Bureau of Agricultural Economics
United States Department of Agriculture
Cooperating

Columbus, Ohio
May, 1942

Contents

	<u>Page</u>
INTRODUCTION.....	1
Purpose of the Study.....	1
Procedure and Method.....	1
CHANGES IN THE NUMBER AND SIZE OF FARM UNITS, 1937-40.....	2
Tenure of Operators and Size of Units Farmed.....	2
Increase in the Number of Operators Renting Additional Land...	5
New Operators and Displacement of Old Operators.....	6
Increase in the Amount of Additional Rented Land.....	7
Pattern of Farming Units in 1940.....	9
Distance of Tracts from the Home Tracts.....	17
WHY ADDITIONAL LAND WAS AVAILABLE TO FARMERS.....	18
Purchase and Sale of Additional Tracts.....	18
Types of Landowners.....	18
Age of Farm Operators.....	20
Why Fields Were Rented Out to Others.....	20
Why Operators Gave up Tracts Formerly Operated.....	21
Reasons Given for Renting Additional Land.....	21
RELATION OF THE SIZE OF UNIT TO THE AMOUNT OF LABOR AND EQUIPMENT AVAILABLE.....	22
Condition and Adequacy of Farm Buildings.....	22
Labor and Machinery Available.....	24
SUMMARY AND CONCLUSION.....	27

Changes in the Size of Farming Units in Three
Land Use Areas of Hancock County Ohio, 1937-40

R. C. Headington and J. I. Falconer

INTRODUCTION

Purpose of the Study

This study, made at the request of land use planning committee members, was designed to reveal whether or not farms in certain areas of Ohio have been growing larger or smaller. Although the size of a farming unit might be altered by changing the amount of labor, capital, and land involved in the enterprise, an attempt was made to measure completely only the changes in total acreage per unit. In this study a farm unit was defined to include all the land farmed by an operator with the same farming facilities and equipment.

Information was also desired which would indicate whether or not an increasing number of operators had obtained additional rented land to add to their unit since 1937, and if so, how important was this practice in comparison with other methods of acquiring additional land.

Similar data was obtained in three sample areas of Darke County, Ohio, and will be published in a separate report.* Darke County farms are generally smaller in size than the farms of other areas of similar soil resources in Ohio.

Procedure and Method

In the Spring of 1941, data was collected in interviews with 100 farm operators in each of three different land-classification areas in Hancock

* A similar study in Darke County, Ohio, entitled, "Size of Farm Units as affected by the Farming of Additional Land" is being published as an Experiment Station monograph bulletin. The authors were assisted in obtaining and tabulating the data by H. B. Marshall, Jr., of the Dept. of Rural Economics and Rural Sociology.

County. Among other questions these 300 operators were asked the size of farm, including all outlying tracts of land, which they had operated in each year from 1937 to and including 1940.

In cases where operators had died or moved away, the information was obtained from neighbors still living in the community.

Land use planning committees had previously established three land classification areas in the County. Area I included areas of land which were rated as being above average in productivity; Area II included those areas of average productivity; and Area III was made up of land which was below average. The committees then sought further information concerning the recent trend in the number and size of farm units in each of these areas. This study was undertaken to obtain such information.

CHANGES IN THE NUMBER AND SIZE OF FARM UNITS, 1937-40

Tenure of Operators and Size of Units Farmed

The data in tables 1 and 2 represent the situations in 1937 and 1940 with respect to all tracts in each of the contiguous blocks of land in which all or part of 100 farm units were located in 1940. The slight difference in total acreage is accounted for in outlying tracts acquired since 1937. The size of units farmed under each tenure arrangement was determined separately.

Table 1.- Number and Size of Farm Units, by Tenure Groups,
Three Sample Areas, Hancock County, 1937

Tenure group	Area I		Area II		Area III		Three Areas	
	No.	Acres	No.	Acres	No.	Acres	No.	Acres
Full owners	23	113.0	43	85.6	36	124.0	102	105.3
Owners, part rented in	26	191.5	14	127.4	10	191.2	50	173.5
Owners, part rented out	14	20.9	7	26.4	7	57.3	28	31.4
Share tenants, single tracts	34	113.2	28	125.5	32	143.9	94	127.3
Cash tenants	1	90.0	6	81.5	6	103.8	13	92.5
Share tenants, several tracts	5	196.0	7	153.7	10	191.8	22	180.6
Total	103	124.2	105	102.2	101	137.8	309	121.1

Table 2.- Number and Size of Farm Units, by Tenure Groups,
Three Sample Areas, Hancock County, 1940

Tenure group	Area I		Area II		Area III		Three Areas	
	No.	Acres	No.	Acres	No.	Acres	No.	Acres
Full owners	21	111.4	34	99.6	31	127.5	86	112.5
Owners, part rented in	25	200.3	16	140.2	12	188.2	53	179.4
Owners, part rented out	16	36.6	7	15.0	10	45.6	33	35.8
Share tenants, single tracts	28	117.5	30	113.1	30	149.5	88	127.5
Cash tenants	1	90.0	6	81.5	7	96.5	14	89.4
Share tenants, several tracts	9	171.0	7	152.9	10	210.0	26	181.1
Total	100	128.5	100	107.3	100	139.3	300	125.0

The trend in average size of farming unit for all areas from 1937 to 1940 was toward a larger unit in each tenure group except cash tenants.

Table 3 shows more clearly the changes since 1937 in the number and size of units in each of the areas studied.

Table 3.- Change in the Number and Size of Units, Three Sample Areas,
Hancock County, 1937 to 1940

Tenure group	Area I		Area II		Area III		Three Areas	
	No.	Acres	No.	Acres	No.	Acres	No.	Acres
Full owners	-2	- 1.6	-9	+14.0	-5	+ 3.5	-16	+7.2
Owners, part rented in	-1	+ 8.8	+2	+12.8	+2	- 3.0	+ 3	+5.9
Owners, part rented out	+2	+15.7	0	-11.4	+3	-11.7	+ 5	+4.4
Share tenants, single tracts	-6	+ 4.3	+2	-12.4	-2	+ 5.6	- 6	+0.2
Cash tenants	0	0.0	0	0.0	+1	- 7.3	+ 1	-3.1
Share tenants, several tracts	+4	-25.0	0	- 0.8	0	+18.2	+ 4	+0.5
Total	-3	+ 4.3	-5	+ 5.1	-1	+ 1.5	- 9	+3.9

The trend in Area I differed from the general trend toward a larger unit in that the group of share tenants farming more than one tract was joined by four tenant operators originally on small single-tract units so that the average size of unit for this entire group in 1940 was decreased by 25 acres per unit. This shift also had the effect of increasing the average size of the remaining single-tract units and the shift of two full owners on large farms to the group renting out part had the opposite effect on their group average.

In Area II, an unusual number of owners quit operating small farms, only two of which shifted to the owner-tenant classification, so that the part-owner group made an important increase in the average size of unit. Loss of these small units to the owner-tenant group also had the effect of increasing the average size of unit in the full-owner group. New tenants rented two small units formerly operated by the owners.

A still different trend was observed in Area III. Here the chief increase in size of unit was made by share tenants of units which had already included more than one tract as far back as 1937. An average of 18.2 acres of additional land per unit was added since then by the operators in this group.

Increase in the Number of Operators Renting Additional Land

A study of tables 1 and 2 reveals that from 1937 to 1940 there was an increase of about 10 per cent in the number of operators who were renting some additional land. The increase in number of operators is shown for each separate area in table 4.

Table 4.- Number of Operators Renting Additional Land
Three Sample Areas, Hancock County, 1937 and 1940

Sample Area	1937	1940	Per cent Increase
Area I	31	34	9.6
Area II	21	23	9.5
Area III	<u>20</u>	<u>22</u>	<u>10.0</u>
Total	72	79	10.9

Data in table 4 indicates that the difference in productivity between areas had very little relation to the per cent increase in number of operators renting additional land. By referring to table 3 it was found that in Area I the increase was made up of tenants who had only begun to rent additional land; in Areas II and III the increase was composed of owners who were renting some additional land. The average size of owner-operated farms in Areas II and III in 1937 was smaller than the average size of tenant-operated farms in these areas. Thus, the owner groups were under greater pressure to acquire additional land, and the fact that the remaining owner-operated units averaged 3.5 and 14.0 acres larger in 1940 indicates that it was the smaller owner-operated units which were enlarged. It should be noted, however, that in Area III the share tenants, whose units were already made up of more than one tract in 1937, had further increased the size of their units by 1940, although the number of such operators remained the same.

New Operators and Displacement of Old Operators

As indicated in table 3, there were 9 fewer operating units in the three areas studied in 1940 than there were in 1937. The extent of this decrease was not the same for each area. The greatest number of units absorbed was in Area II, where farming units had averaged smallest in 1937. On the other hand, Area III, whose units averaged largest in 1937, lost only one additional unit by 1940.

A study of the records revealed a/ that since 1937 in Area I, three owner operators had begun to rent out part of their land to others, while one man, who had rented out part of his farm in 1937 because of illness, recovered sufficiently to operate it himself after that year. Thus, the net effect was an increase of two units in the group renting out part to others. Another owner who had been renting some additional land in 1937 ceased to farm after that, decreasing his group by one unit. Of the six fewer tenants on single tracts, one died, one was displaced when his landlord rented the land to a non-resident operator and the buildings to a factory worker, and the remaining 4 men acquired additional tracts so that they became tenants on several tracts in 1940. The net result was a loss of two tenants and one owner operator in this area during the period studied.

In Area II, where units were smallest in 1937, there was a net decrease of 7 owners and a net increase of two tenants, or a total net decrease of 5 operating units. The data indicated that one owner died, one quit farming to work in town and 5 operators retired from farming completely. Two of their units were turned over to share tenants, accounting for the increase in that group, and the remainder were rented to neighboring owners to farm as non-resident operators.

In Area III, where units were already the largest in 1937, there was a net decrease of only one tenant-operated unit. The tenant group lost two

a/ The cases cited represent only the most recent changes, rather than every change made in the number of units since 1937.

operators, one of whom became an owner operator, and the other inherited some land and became a part-owner operator. Another operator, however, lost his farm through foreclosure and became a cash tenant so that there was a net loss of only one tenant.

Thus, in all three areas the net result of the most recent changes in the period from 1937 to 1940 was that there were 8 fewer owner-operated units and one less tenant-operated unit in those areas at the close of the period studied. This would indicate that almost three per cent of the farming units operated in 1937 were absorbed by 1940 in the process of enlarging other operating units. The greatest absorption of units, likewise was found where units had been smallest originally.

Increase in the Amount of Additional Rented Land

The relative importance of each method of acquiring additional land to farm is shown in table 5 along with the changes in the amount of such land acquired and given up by 1940 operators during the previous three years.

Table 5.- Changes in the Amount of Land Operated in Addition to Home Tracts from 1937 to 1940, by Tenure Groups, Three Sample Areas, Hancock County, Ohio

1940 tenure of operator	Extra acres acquired 1937-40	Extra acres given up 1937-40	Changes in acres		Total net changes (acres)
			Gained	Lost	
Full owners:					
Owned	140	0	140	0	- 12
Rented	0	152	0	152	
Owners, part rented in:					
Owned	200	0	200	0	+744
Rented	624	80	544	0	
Owners, part rented out:					
Owned	(80) <u>a/</u>	346 <u>b/</u>	0	346 <u>b/</u>	-346
Rented	0	0	0	0	
Share tenants, single tracts:					
Owned	0	40	0	40	-130
Rented	0	90 <u>c/</u>	0	90 <u>c/</u>	
Cash tenants:					
Owned	0	0	0	0	-170
Rented	0	170	0	170	
Share tenants, several tracts:					
Owned	0	0	0	0	+302
Rented	432	130	302	0	
All operators:					
Owned	340	386	0	46	+388
Rented	1056	622	434	0	
Total	1396	1008	xxx	xx	+388

a/ Not included in totals because they were rented out to others to operate.

b/ Thirty acres away from home, 316 acres formerly fields of a home unit.

c/ Former tracts, if any, not learned for two operators in this group.

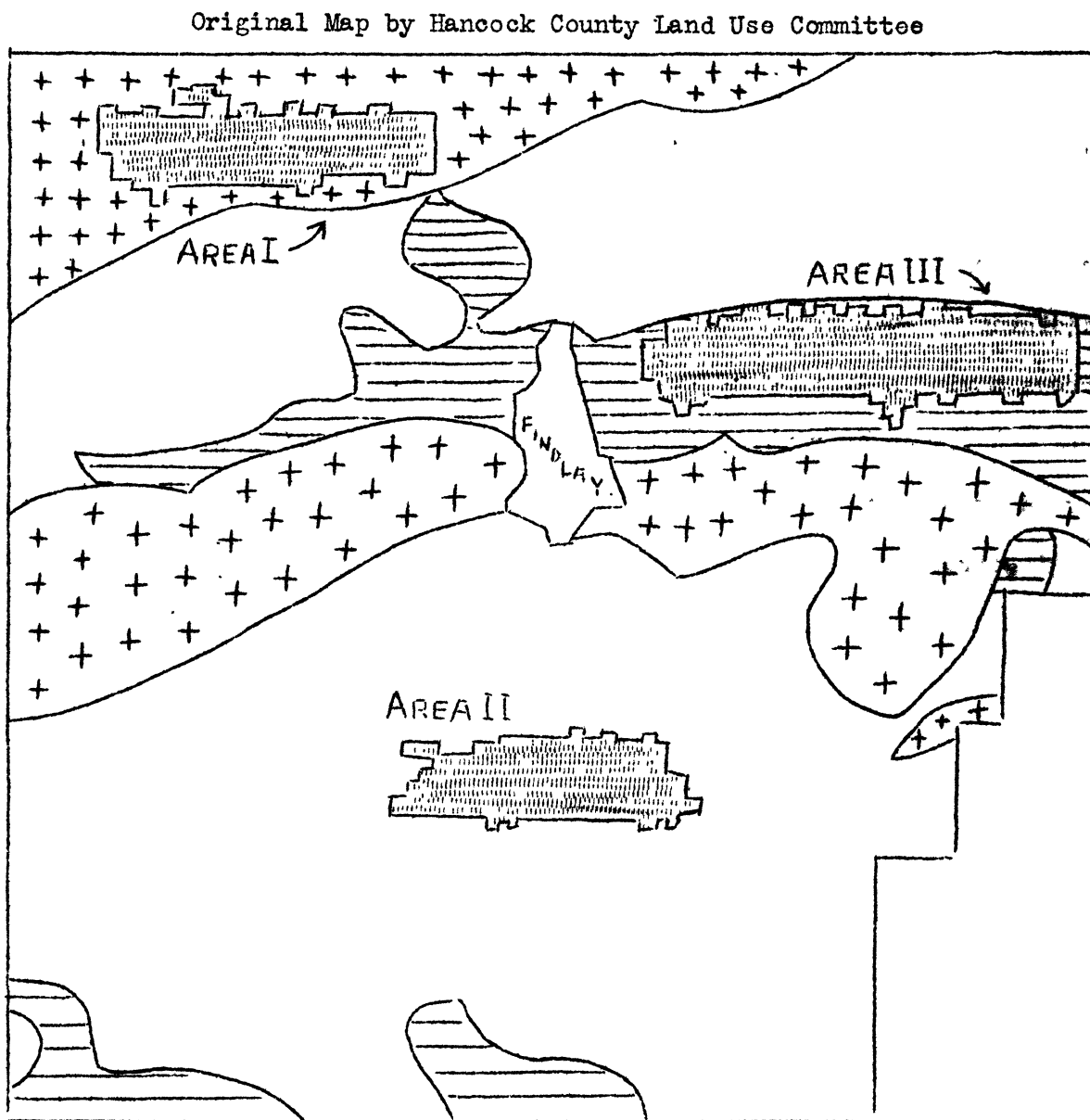
The data point to the conclusion that since 1937, in the areas studied in Hancock County, the owner and part-owner operators acquired the bulk of extra land as it was made available in their neighborhoods. The net amount acquired, including both rented and owned, was 388 acres, part of which came from units formerly operated on the areas which were absorbed during the period 1937 to 1940. This fact coupled with the fact that owners who were renting part of their land to others to operate had increased the amount rented out by only 346 acres, would indicate that in these areas many farmers wishing to retire still followed the practice of ceasing to farm completely and usually relinquished the entire farm unit including the buildings to another operator. They did this in

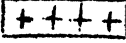
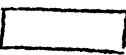
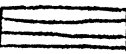

most cases rather than adopt the practice which was found so often among older operators in Darke County of renting out only the fields while still occupying the farm buildings and caring for the livestock themselves.

Pattern of Farming Units in 1940

The following figures, 1 to 7 inclusive, are maps, first of Hancock County showing the areas sampled, and second of each of the three separate areas studied. These show the pattern of farming units found in 1940 in each area. Tracts not adjoining and under the same ownership and operation in 1940 are connected with arrows having only ~~one-half~~ the arrowhead barbed; tracts and parts of tracts (fields) farmed as rented additions to a home tract are indicated by double barbed arrows drawn from a circle placed at the operator's home tract. A single circle was used in case the home tract was owned by the operator in 1940, while a double circle was used to represent a rented home tract.

FIGURE 1.- AREAS STUDIED, HANCOCK COUNTY, OHIO



Above Average in Productivity.....	I...	
Average Productivity.....	II...	
Below Average Productivity.....	III...	
Areas Studied.....		

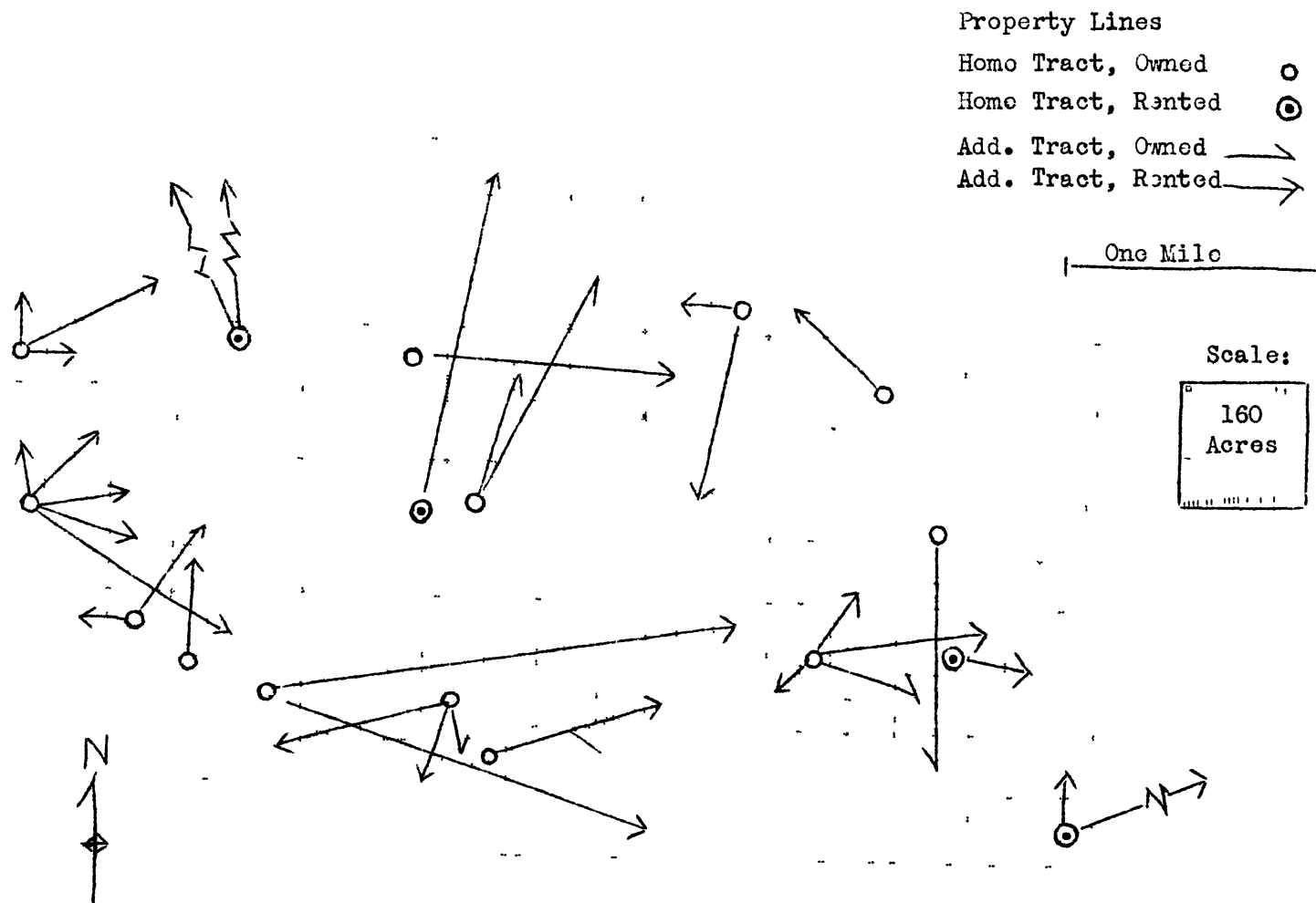


FIGURE 2.- FIFTY OPERATING FARM UNITS, WEST PART, AREA I, HANCOCK COUNTY, 1940

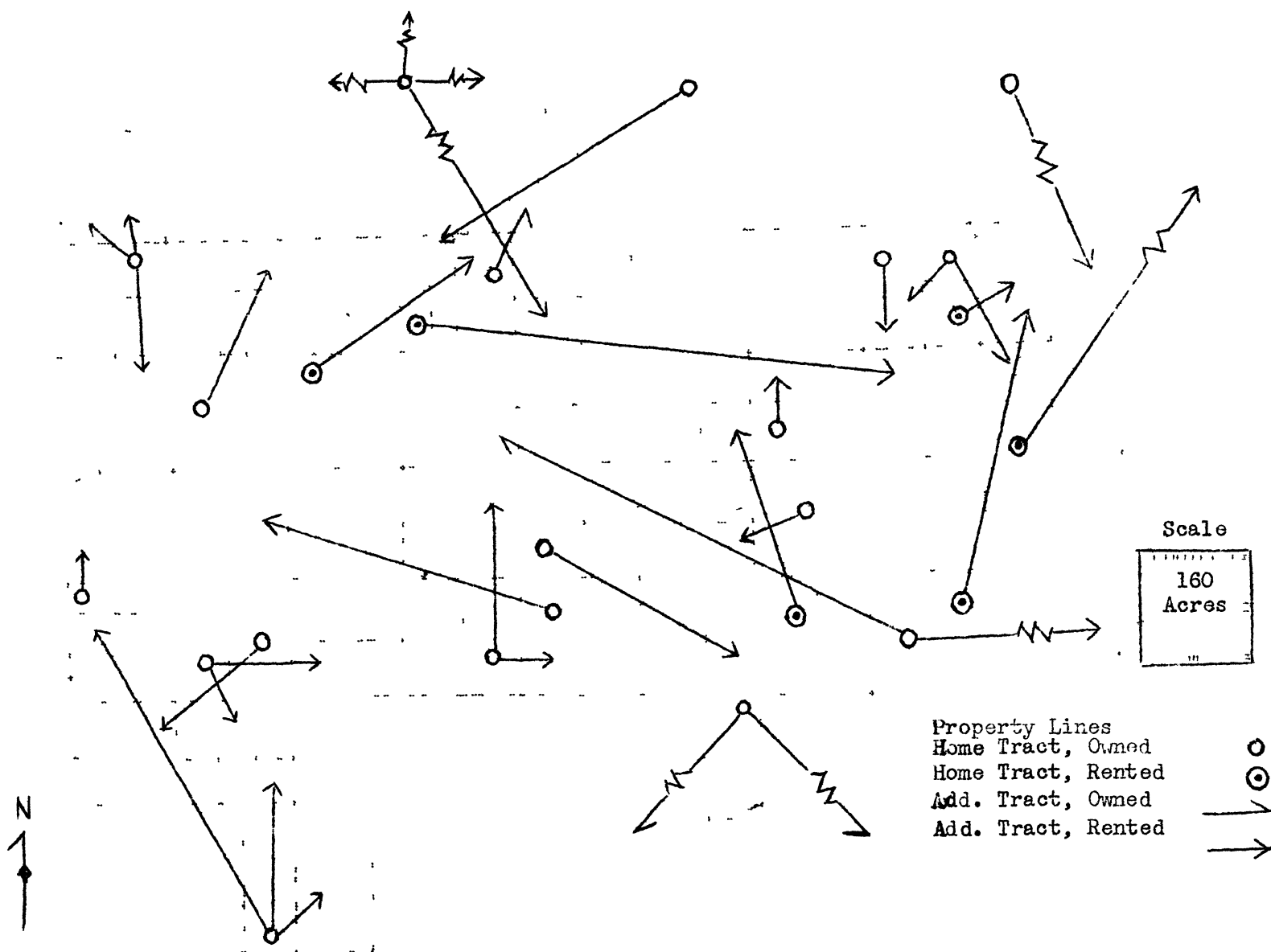


FIGURE 3.- FIFTY OPERATING FARM UNITS, EAST PART, AREA I, HANCOCK COUNTY, 1940

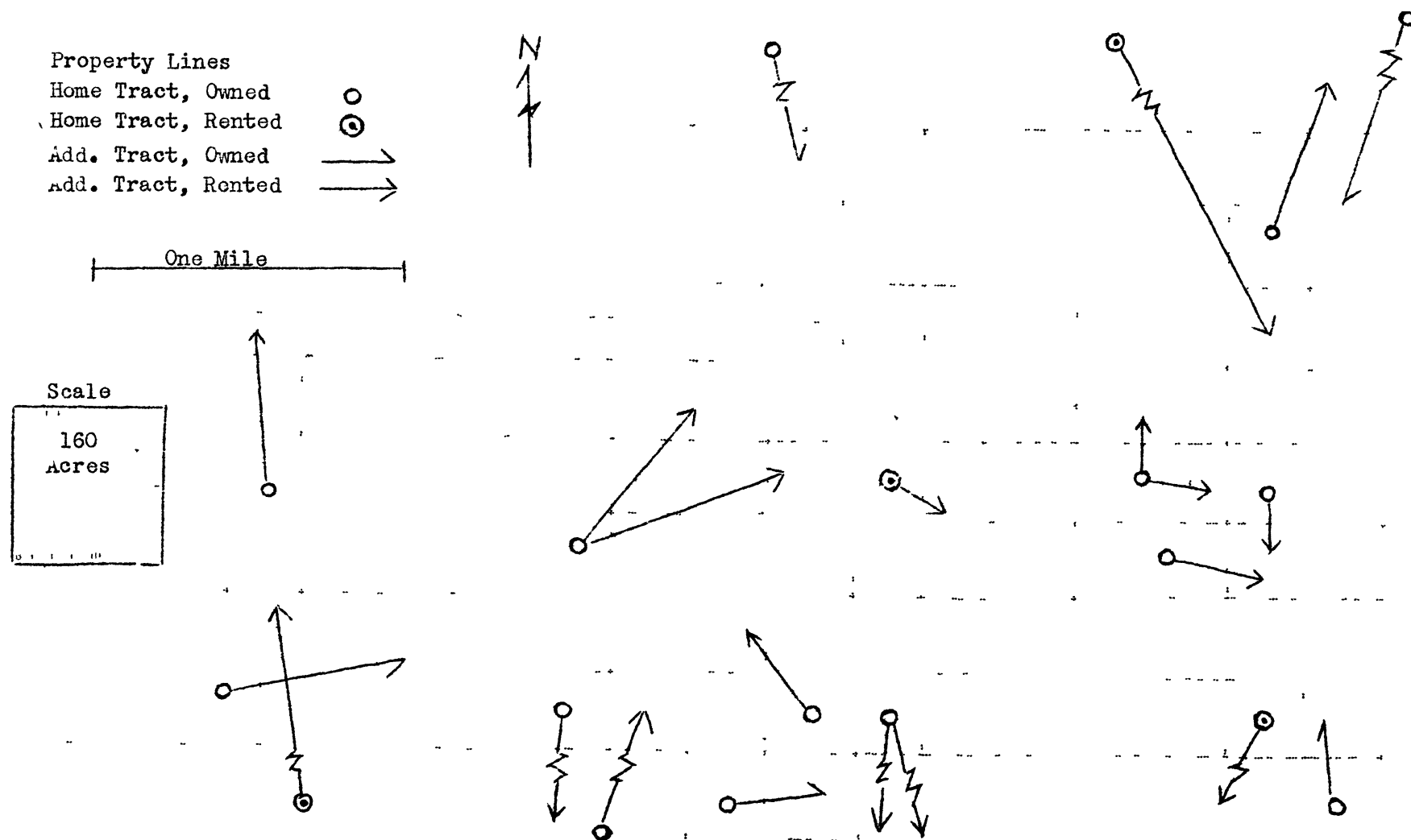


FIGURE 4.- FIFTY OPERATING FARM UNITS, WEST PART, AREA II, HANCOCK COUNTY, 1940

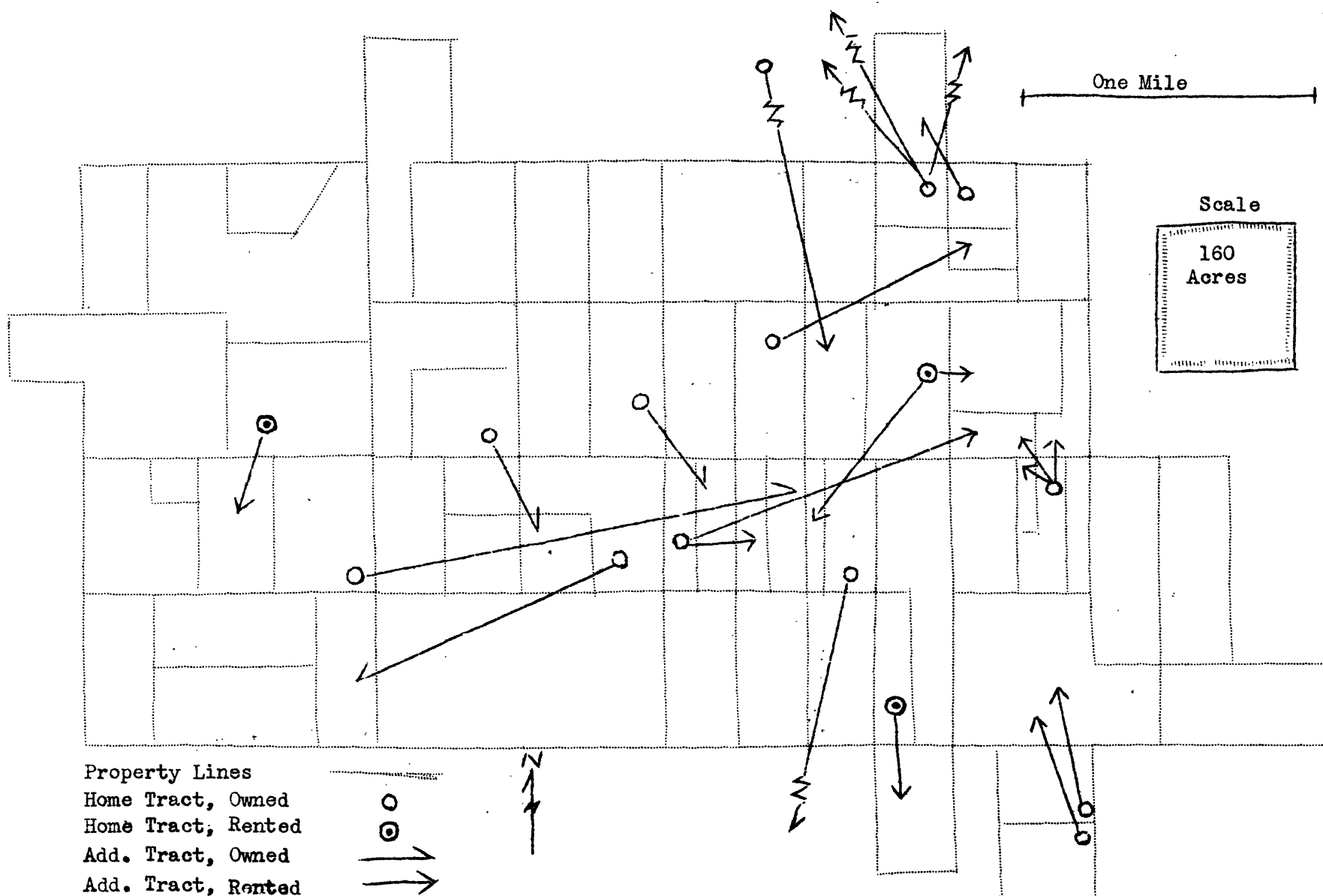


FIGURE 5.- FIFTY OPERATING FARM UNITS, EAST PART, AREA II, HANCOCK COUNTY, 1940

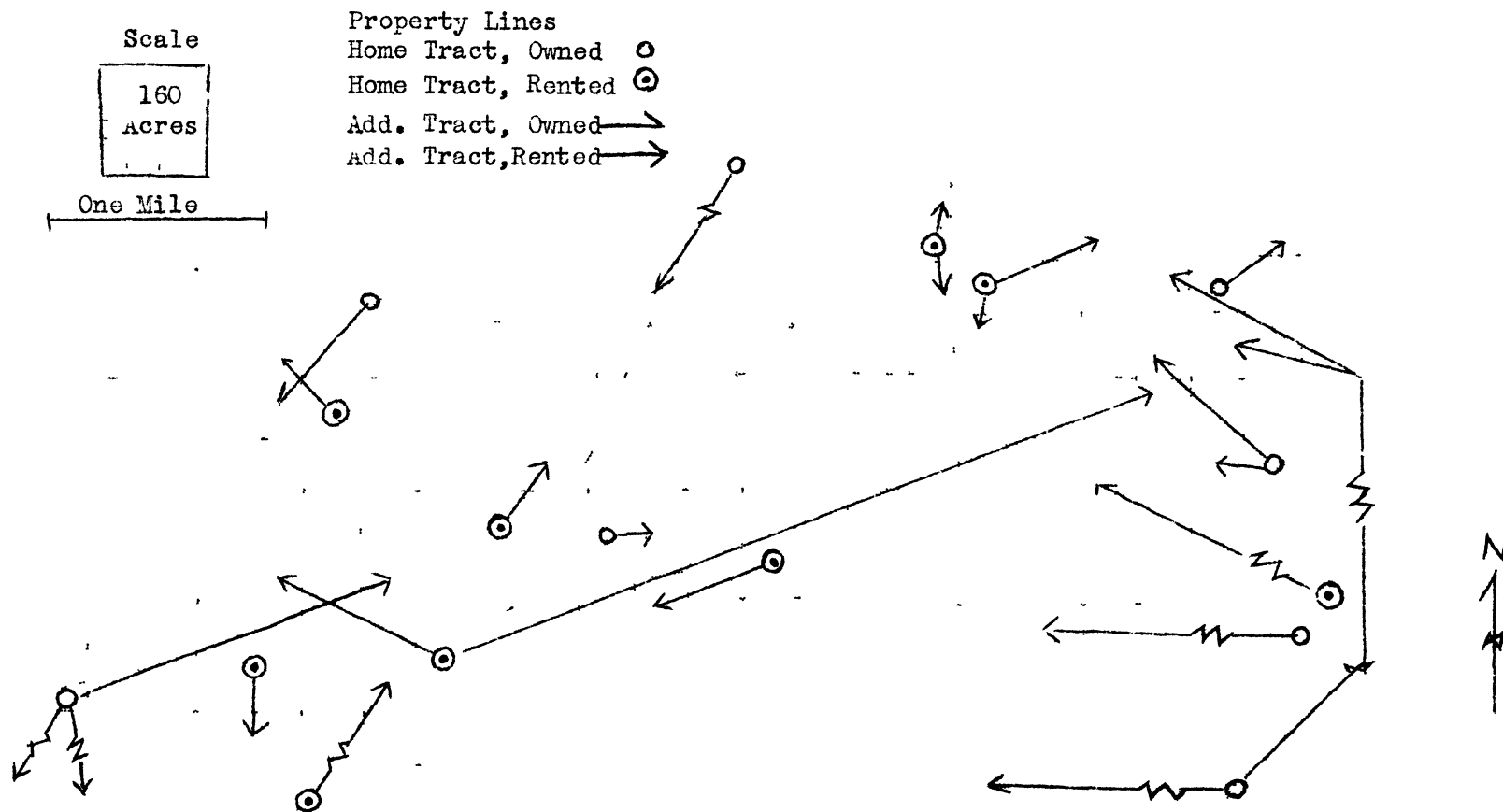


FIGURE 6.- FIFTY OPERATING FARM UNITS, WEST PART, AREA III, HANCOCK COUNTY, 1940

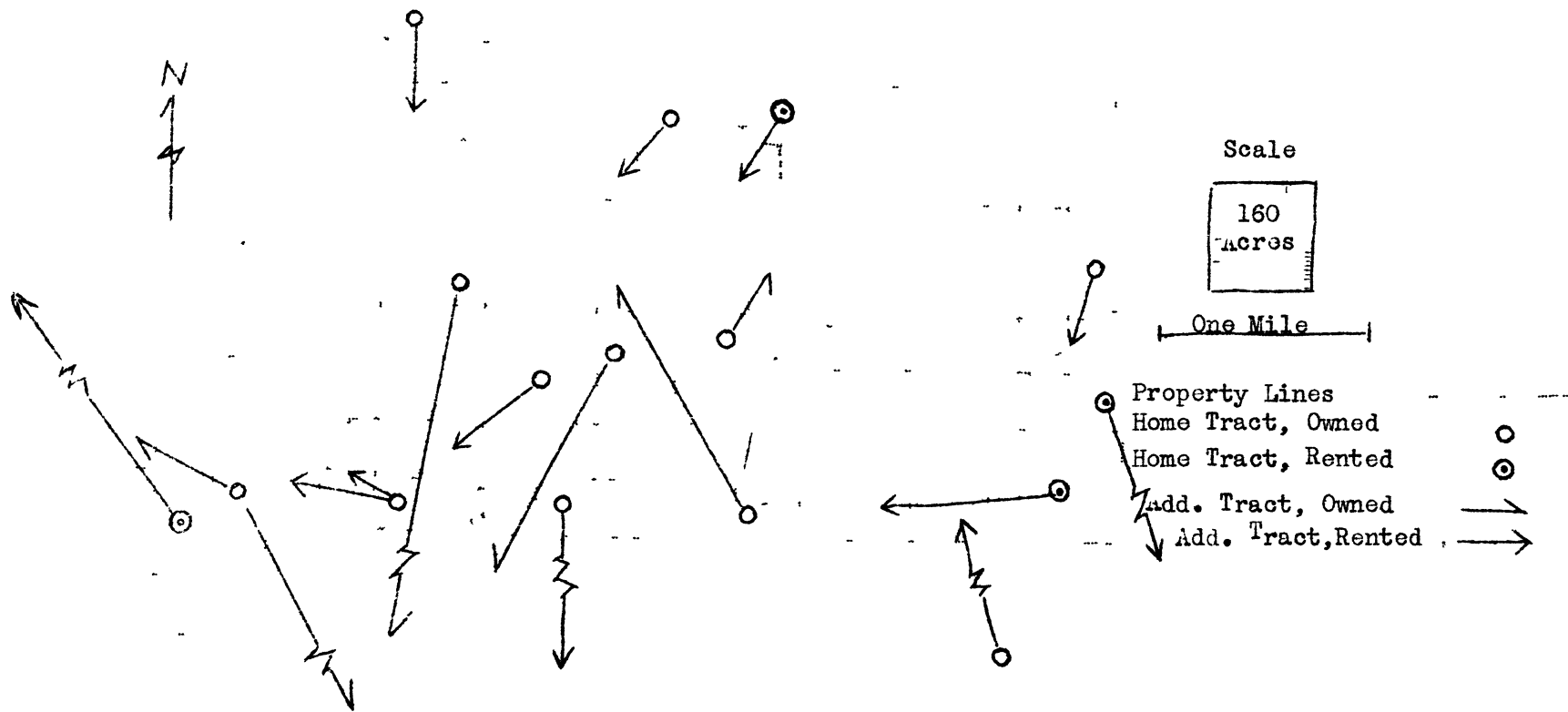


FIGURE 7.- FIFTY OPERATING FARM UNITS, EAST PART, AREA III, HANCOCK COUNTY, 1940

Distance of Tracts from the Home Tracts

In connection with the subject of additional tracts, some questions arise such as, What distances do operators travel to outlying tracts? And How many tracts adjoined home tracts? Table 6 lists the number of additional tracts farmed and the distance by road or lane to such tracts not adjoining the home tract.

In the three areas studied in Hancock County, it was found that very few additional tracts owned and farmed away from home by full-owner operators adjoined the home tract. Such tracts were not very far distant, however, being on the average only 1.6 miles away. About 40 per cent of all additional tracts rented in by part-owner operators adjoined the home tract, and the few additional tracts which were owned by this group, but for three exceptions, did not adjoin. Rather, they were at an average distance of 1.8 miles, or slightly farther than outlying tracts farmed by full owners.

Table 6.- Tracts Farmed Away From Home, by Tenure Groups,
Three Sample Areas, Hancock County, 1940

Tenure group	Total tracts	Tracts adjoining	Number and average distance of tracts not adjoining	
	Number	Number	Number	Miles
Full owners	19	3	16	1.6
Part owners				
Tracts rented	72	30	42	1.9
Tracts owned	14	3	11	1.8
Cash tenants	3	2	1	3.5
Share tenants	<u>31</u>	<u>10</u>	<u>21</u>	<u>2.6</u>
All operators, total	139	48	91	2.0

In no case did an owner or part-owner farm more than six miles away, while one tenant operator was found to be farming an 80 acre tract 17 miles from his home tract. One operator, who owned his home tract of 20 acres, farmed 5 additional tracts totaling 280 acres, another who owned his home tract of 80 acres, was farming 4 additional tracts amounting to 377 acres.

Two of his tracts, which he rented for cash, were 5 miles from his home.

The tracts farmed away from home by owners and part owners in Area I averaged 1.3 miles distance, in Area II, 1.8 miles, and in Area III, 2.8 miles. Those farmed by tenants, averaged 2.3 miles in Area I, 5.1 miles in Area II, and 1.5 miles in Area III.

WHY ADDITIONAL LAND WAS AVAILABLE TO FARMERS

Purchase and Sale of Additional Tracts

The purchasing and sale of extra tracts, on the basis of total acres involved, played almost as important a part in the changes in farm units as did the practice of renting out land. That is, owner operators and part-owner operators purchased a total of 5 additional tracts of land totaling 340 acres in the period studied. Only one extra tract of 40 acres was sold by an operator in the same period. Thus, a net of 300 acres were purchased and added to units at the same time that 346 acres, formerly operated by owners were rented out to others to operate. No data was obtained as to why tracts were purchased and sold, but it is probable that such transactions were often motivated by reasons other than to increase or decrease the amount of land which the operator wished to farm in any one year. On the other hand, the decision to rent additional land or to rent part out to others, was almost always directly connected with the operator's farming plans.

Types of Landowners

A study of the tracts which were rented to non-resident operators in 1940 revealed the following types of land owners:

Table 7.- Types of Land Owners of Tracts Rented to Non-resident Operators,
Three Sample Areas, Hancock County, 1940

Type of owner	Per cent of total number			
	Area I	Area II	Area III	Three Areas
Active farmers	25	30	40	30
Retired farmers and widows	20	30	20	23
Individuals, not farmers	31	24	20	26
Estates of deceased persons	24	13	20	20
Financial institutions	0	3	0	1
Total	100	100	100	100

Although table 7 shows that 30 per cent of the tracts rented to non-resident operators were owned by active farmers, 30 of these 32 tracts (or fields) were owned by farmers no longer engaged in producing all of their own field crops. These men were classed as actively farming, however, because they still looked after their livestock and produced and sold livestock products from their unit in 1940. These men were, in general, feeding livestock from their share of crops grown under a share agreement by another operator to whom they had rented part or all of their fields. Only men who had ceased to farm completely were classed as retired. In a few cases, these men still resided on the farm but were not listed as actively farming even though a cow or a few chickens might be kept. The same was true for the widows of retired farm operators.

Although 30 per cent of this kind of tracts were owned by active farmers, a survey of all tracts farmed in the areas showed that 43 per cent were owned by active farmers; retired farmers and their widows owned 34 per cent; individuals, not farmers, owned 12 per cent; estates, 9 per cent; and financial institutions 2 per cent.

Evidently the proportion of tracts owned by estates and non-farm individuals which were made available to non-resident operators was greater than for other types of owners. In the case of estates, the prospective period of tenure for a resident operator may have been either too short or too indefinite for most

tenants, while in still other cases the former operator's widow might still be residing in the buildings. Although 46 per cent of the additional tracts in the three areas studied were owned by estates and non-farm individuals, this proportion was even greater in Area I, totaling 55 per cent. In Area II, however, it was 37 per cent, and in Area III, 40 per cent.

Age of Farm Operators

In view of the fact that some operators in 1937 had fully retired from farming by 1940, while others had only partly done so, the ages of the operators in each tenure group were investigated and the results are shown in table 8.

Table 8.- Average Age of Farm Operators, by Tenure Groups,
Three Sample Areas, Hancock County, 1940

Tenure group	Average age of operator		
	Area I	Area II	Area III
Full owners	52	50	49
Owners, part rented in	46	45	45
Owners, part rented out	63	63	66
Share tenants, single tracts	44	39	40
Cash tenants	58 ^{a/}	31	46
Share tenants, several tracts	39	39	42
All operators	49	45	47

^{a/} Includes only one operator.

The average age of tenants was slightly less than for other groups, while the group of owners who were renting out part of their farm to others were on the average well past 60 years of age.

Why Fields Were Rented Out to Others

When the operators who were renting out part were asked why they had done so, 19, or 58 per cent, replied that they could no longer engage in field work because of poor health and physical inability to do so. Another 18 per cent replied that they were too busy looking after their other interests to do any field work; 9 per cent said that sickness, death and other disasters in their family had influenced their action; 6 per cent gave as their reason the lack of

tools and machinery with which to produce field crops; and finally, 9 per cent gave miscellaneous reasons such as "dislike of field work", "loss of hired help", and a desire to "give the young men a chance to farm."

Why Operators Gave Up Tracts Formerly Operated

When the operators who gave up extra tracts were asked why they had done so, 26 per cent reported it was because the land was sold; 13 per cent were requested to do so by the land owner. Another 13 per cent did so when they had an opportunity to obtain a better tract, and an equal number gave up rented tracts when they were able to purchase additional land. The remainder either gave no reason or gave such miscellaneous ones as "ill health," "too far away", and "too busy to handle extra land."

Reasons Given for Renting Additional Land

On the other side of the situation, the operators who were renting additional land in 1940 were asked the chief reason for doing so. Their replies have been summarized and are listed in table 9.

Table 9.- Why Additional Land Was Rented, Three Sample Areas,
Hancock County, Ohio, 1940

Reasons given	Number of operators giving reason			
	Area I	Area II	Area III	Three Areas
1. Need for more food, pasture and/or land; larger unit sought	5	3	10	18
2. Try to keep ourselves, our help, and our machinery busy	5	8	4	17
3. Need more income	10	4	3	17
4. Accommodate a neighbor	4	0	7	11
5. Accommodate a relative.	7	6	8	21
6. Bought (or inherited) a farm and continue on farm previously rented	0	1	1	2
7. Miscellaneous reasons	3	1	0	4
8. No reasons given	4	4	2	10
Total	38	27	35	100

In table 9 it is indicated that 35 per cent of these operators rented additional land in order either to avoid having idle factors of production or to obtain more of a scarce factor. On the other hand, 32 per cent reported farming additional land chiefly as an accommodation. A third group, 17 per cent of the total number, were motivated by a desire for more total income. The remaining 6 per cent, excluding those who gave no reason for renting additional land, reported such reasons as "the owner of my home tract asked me to farm his place also"; and "I need to farm heavier because the sale of horses no longer provides enough extra income for me." Two operators stated that they rented additional tracts "having a heavy crop history in order to gain the advantage of the larger farm-program allotments on such tracts."

RELATION OF THE SIZE OF UNIT TO THE AMOUNT OF LABOR AND EQUIPMENT AVAILABLE

Condition and Adequacy of Farm Buildings

The condition and adequacy of farm buildings as rated by observation, and the use of electricity and water pressure systems as reported by the operator, have been tabulated and summarized in table 10. One of the interesting points revealed was that the tenants farming more than one tract, and having in each area except Area I, the largest units, had as great or greater a proportion of inadequate barns than any other groups in all the areas studied. There was considerable variation in the distribution of barns in poor condition; however, with part-owners and tenants having about an equal proportion in Areas II and III. The highest proportion found in Area I was in the owner operated group where 28 per cent of all barns were in poor condition.

In the case of houses occupied by farm operators, the greatest inadequacy was found among the tenant groups in all areas. This was partly due to the fact that tenants were mostly younger men with larger families still at home. With respect to the condition of houses, however, there was more variation.

**Table 10.- Average Acres per Unit, Condition, and Adequacy ^{a/} of Farm Buildings,
by Tenure Groups, Three Sample Areas, Hancock County, 1940
(Per cent of total number of units in each tenure group)**

	Sample Area	Full Owners	Owners - part:		Tenants			All Operators
			rented in	rented out	single tracts	cash	several tracts	
Average number of acres farmed per unit	I	111.4	200.3	36.6	117.5	90.0	171.0	128.5
	II	99.6	140.2	15.0	113.1	81.5	152.9	107.3
	III	127.5	188.2	45.6	149.5	96.5	210.0	139.3
Per cent of total number having inadequate barns	I	19	10	18	14	0	20	15
	II	8	5	11	13	0	13	9
	III	6	0	0	6	0	6	4
Per cent of total number with barns in poor condition	I	28	0	12	4	0	0	7
	II	11	33	11	19	17	13	17
	III	11	26	25	19	50	24	21
Per cent of total number of houses inadequate in size	I	17	5	17	27	0	13	15
	II	3	0	0	6	0	0	3
	III	6	6	0	6	13	0	5
Per cent of total number of houses in poor condition	I	21	5	11	3	0	20	10
	II	3	5	0	19	0	0	7
	III	5	22	7	13	25	22	14
Per cent of total number of farms using electricity	I	72	77	63	53	100	65	68
	II	92	95	78	77	100	83	87
	III	86	63	92	75	63	67	76
Per cent of total number of farms having water systems	I	12	16	16	10	100	6	13
	II	41	30	33	13	33	25	29
	III	20	21	46	31	13	17	25

^{a/} Adequacy - rated by observation, depending on the number, location, and size of buildings relative to the size of farm, size of family, and type of farming being followed.

As in the case of barns, Area I again had a high proportion of poor dwellings among the owner-operated group. In the other areas, however, the poorest dwellings were more often found on tenant farms. The same was also true for the group of owners renting additional land in Area III, and in addition, this group had relatively fewer farms equipped with electricity. In the matter of electricity, it was found that fewer tenant farms had electricity in each of the areas studied. As compared with owned units, the difference with any one tenure group was from 10 to 20 per cent. Tenants were at the same relative disadvantage in the use of pressure water systems.

When each area was viewed as a whole, rather than by separate tenure groups, the greatest number of inadequate barns was found in Area I. This was explained in part by the past emphasis on cash grain farming in this area and farmers who had recently begun to emphasize livestock production in Area I have recognized the problem of inadequate buildings. The same thing was true in the case of houses in Area I, but here again the high proportion of inadequate houses may be explained by the fact that a high water table made difficult the drainage of cellars and the construction of foundations upon which to erect large and substantial dwellings. Very few homes in this region were heated with furnaces for the same reason.

Labor and Machinery Available

In connection with the reasons given in table 9 for renting additional land, 17 per cent of the operators reported doing so to avoid having idle labor and equipment. The amounts of these factors available to each tenure group in 1940 was investigated. It was found that in all three areas the groups which were renting additional land had the most labor available at home. This was exclusive of hired labor. In addition, owners who were renting additional land in Areas I and III hired the most extra labor of any group; averaging 4.2 and 4.9

man-months respectively. In Area II, tenants renting more than one tract hired the most labor, an average of 4.7 man-months per farm. In all three areas, the tenants renting more than one tract reported the least average total man-months of labor used per acre of land farmed. Table 11 shows, by areas, the amount of labor for each group.

Table 11.- Labor Used by the Operators of Additional Land, Compared with Average, Three Sample Areas, Hancock County, Ohio, 1940

Tenure group	Man-months a/ in excess of average		
	Area I	Area II	Area III
Owners, part rented in	4.9	1.9	4.0
Share tenants, several tracts	0.0	2.4	2.5

a/ Includes operator, family and hired labor.

The man-month unit of labor represents operators' estimates of the total period of employment of both regularly and irregularly employed family and hired help.

The need for more labor may not have been as great among the tenant group in Area I because table 13 indicates that this group owned relatively more combines, corn-pickers, and other labor-saving machines than those in the other areas. The least amount of hired labor was found in Area II; the most, an average of 2.6 man-months per farm, was found in Area III. The data for hired labor did not include the operators of hired machinery.

In this connection, and as related to the data on distance to additional tracts in table 7, some information was obtained relative to the use of large units of farm machinery. The percentage of the total number of operators in each area using such machines, and the percentage of tractors mounted on rubber tires is shown in table 12.

Table 12.- Farm Machinery, Three Sample Areas,
Hancock County, 1940

	Per cent of total number of units		
	Area I	Area II	Area III
Units hiring tractor work <u>a/</u>	7	1	1
Units hiring corn picked	17	18	25
Units hiring combining	58	42	40
Units owning tractors (all types)	77	73	84
Units owning tractors (on rubber)	21	49	50
Units owning corn pickers	11	7	7
Units owning combines	8	13	15
Total units using tractors (all types)	84	74	85
Total units using tractors (on rubber)	28	50	51
Total units using corn pickers	28	25	32
Total units using combines	66	55	55

a/ Includes plowing, fitting, ditching, grading, and belt work.

As shown in table 12, one-half the operating units in Areas II and III were equipped with tractors on rubber tires. In Area I, however, slightly over one-fifth of the units were so equipped. In this area, most tractor rear wheels were fitted with deep, wedge-type steel lugs. This may have been associated with a problem of drainage in this area.

It was also indicated that fewer combines were owned in Area I than in the other two areas studied. On the other hand, more corn pickers were owned. Although fewer combines were owned in Area I, they were used more than in Areas II and III because of the emphasis of many units in Area I on the production of soybeans. The number of units hiring corn picked in Area I was slightly less, however. Although the relative use of such machines is shown in table 13 for each area studied, table 13 should be consulted for data showing the per cent of each tenure group owning these machines.

Table 13.- Ownership of Farm Machines on Rubber Tires, by Tenure Groups, Three Sample Areas, Hancock County, 1940

1940 tenure of operator	Area studied	Per cent of units in each group owning each machine				
		Tractors (all types)	Tractors (on rubber)	Corn a/ pickers	Combines	Other b/ machines
Full owner	I	72	14	0	0	67
	II	74	59	12	15	32
	III	87	48	10	23	55
Owner, part rented in	I	100	36	24	12	112
	II	100	75	0	31	25
	III	100	67	0	17	92
Owner, part rented out	I	6	0	0	0	0
	II	0	0	0	0	0
	III	20	20	10	10	33
Share tenant, single tract	I	75	18	7	11	72
	II	73	43	10	7	47
	III	90	50	3	7	53
Cash tenant	I	100	0	0	0	100
	II	33	33	0	0	33
	III	57	43	14	29	71
Share tenant, several	I	100	44	33	22	111
	II	100	29	0	14	43
	III	100	70	10	10	70

a/ Includes mounted pickers.

b/ Ratio of the total number of wagons, trucks, trailers, spreaders, buck rakes, plows, and other machines to number of units.

SUMMARY AND CONCLUSION

According to data obtained from the operators of 100 farm units in each of three different land-use areas of Hancock County, Ohio, for the period 1937-40, the average farm unit had increased in size from 121.1 acres to 125.0 acres.

There was considerable difference between areas, however, because in Area I where soil resources were above average in productivity, the average unit increased from 124.2 acres to 128.5; in Area II, on land of average productivity, the increase was from 102.2 acres to 107.3 acres; and in Area III, on land below average, the increase was least being from 137.8 acres per unit to 139.3 acres.

The data also revealed that the trend toward larger units hold true for all tenure groups in the three areas, with the single exception of cash tenants. The greatest increase in land farmed per unit was made by the group of share tenants farming more than one tract in Area III who increased each of their units an average of 18.2 acres. Looking at all three areas as a whole, however, it was the owners and part-owners farming additional land who acquired the bulk of the additional land available during the period studied. These operators, having the smaller units to begin with, were probably under greater pressure to expand.

A net total of 9 units were absorbed during the period, 5 of them in Area II. Eight were formerly owner-operated units and one was tenant operated.

The increase in number of operators renting additional land was only about 10 per cent in each area studied, but the number of operators who were renting out part of their farm to others advanced from 28 in 1937 to 33 in 1940, or an increase of 18 per cent. There was no increase in this group in Area II, because in that area all operators wishing to retire ceased to farm completely. As to the increase from 1937 to 1940 in the amount of additional rented land it was about 10 per cent in Area I, 20 per cent in Area II, and 30 per cent in Area III.

A study of the pattern of farming units indicated that in Areas I and III, especially, some units could achieve greater efficiency by exchanging tracts for others nearer the home unit.

It was found that 80 per cent of all additional land was acquired by renting. In Area I, such tracts farmed away from home, including owned tracts which did not adjoin the home tract, were at an average distance of 1.3 miles in the case of owner and part-owner operators; in Area II, 1.8 miles; and in Area III, 2.8 miles. In the case of tenants, such tracts averaged 2.3 miles away in Area I, 5.1 miles in Area II, but were only 1.5 miles on the average from the home tract in Area III. Very few tracts owned away from home adjoined the home tract of the operator, and only about 40 per cent of the additional tracts rented adjoined the home tracts owned by such operators. Only about one-third of the additional tracts rented by tenant operators adjoined the home tract. In fact, the tracts farmed by tenants were on the average 0.7 miles farther away from home. One owner farmed as far away as six miles, while a tenant farmed 80 acres located as far as 17 miles away. No operator was found farming more than 6 tracts of land in 1940.

Almost as much additional land was purchased and added to units from 1937 to 1940 as was made available by semi-retired owners renting out part of their farm to others. A high proportion of the remainder made available to operators to farm as additional land was owned by estates and non-farm people. Tenant operators averaged somewhat younger in age as a group, and the owners who were renting out part were, on the average, well past 60 years of age. Fifty-eight per cent of this oldest group reported they were forced to rent out part of their farm because of poor health and inability to farm for themselves. Eighteen per cent said they were too busy looking after other interests. Only 6 per cent reported lacking the necessary farm tools; 9 per cent said their action was

